



Armed Forces College of Medicine

AFCM





Diseases of male genital system

Prof Dr Nermeen Salah





Lecture (7)

Diseases of prostate & penis

INTENDED LEARNING OBJECTIVES (ILOs)



By the end of this lecture the student will be able to:

1. Classify types of prostatitis
2. Correlate the pathological features of benign prostatic hyperplasia with clinical picture and other lab investigations.
3. Explain the complications benign prostatic hyperplasia
4. Correlate the pathological features of prostatic carcinoma with clinical picture and other lab investigations.
5. List methods of spread of prostatic carcinoma.
6. Discuss diseases of the penis.
7. State the causes of hydrocele, & hematocele and their effects
8. Determine causes , pathological features and effects of varicocele



Prostatitis



1-Acute Prostatitis

- Caused by **pyogenic bacteria** (gonococci, staph, E coli, etc..)
- **Direct spread** of infection from urethritis or cystitis
- **Blood borne** from distant

2-Chronic Nonspecific Prostatitis

May follow acute inflammation.

3-Granulomatous Prostatitis

- Tuberculosis
- Bilharziasis



Benign prostatic hyperplasia (BPH)



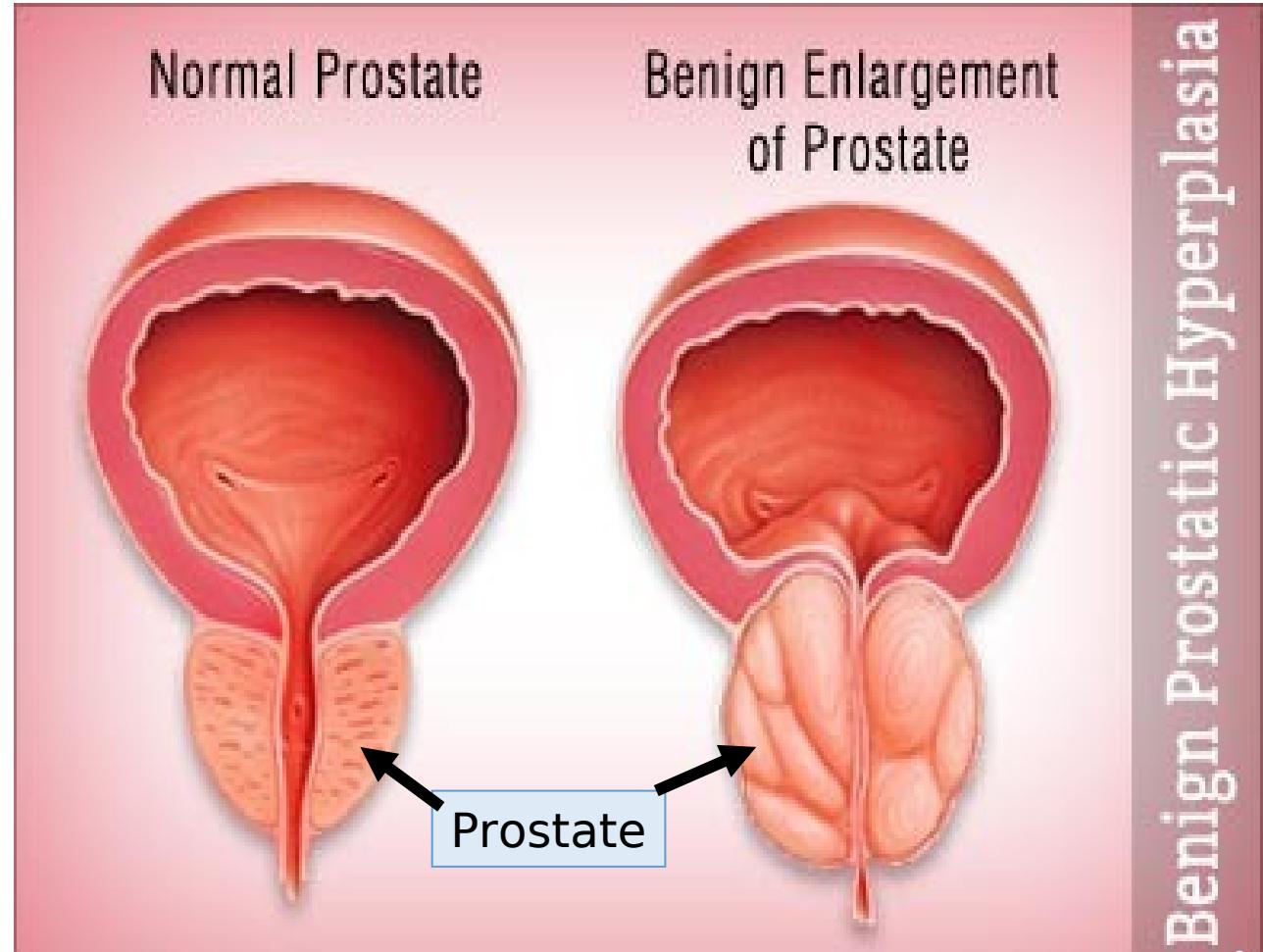
Benign prostatic hyperplasia

□ 8% of men in their fourth decade

□ 50% in men in the fifth decade

Pathogeneses

□ Increase in 5 α -reductase in the prostate by age that reduces testosterone to dihydrotestosterone which is more potent for prostatic growth



Benign Prostatic Hyperplasia

N.B.

The lesion is not premalignant

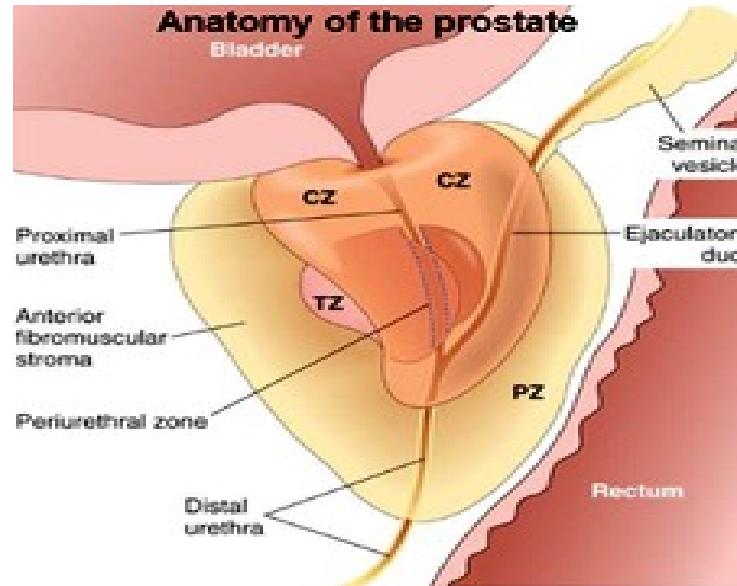


Benign prostatic hyperplasia (BPH)



Gross

- The weight of prostate ranges between 35 gm (mild cases) to 800 gm or more.
The average is around 100gm



<http://patologiabciclo2013.blogspot.com/2013/09/vias-urinarias-inferiores-y-aparato.html>

- Central and transitional zones** of the prostate around the urethra become enlarged with nodular cut section
- Peripheral prostatic tissue is compressed

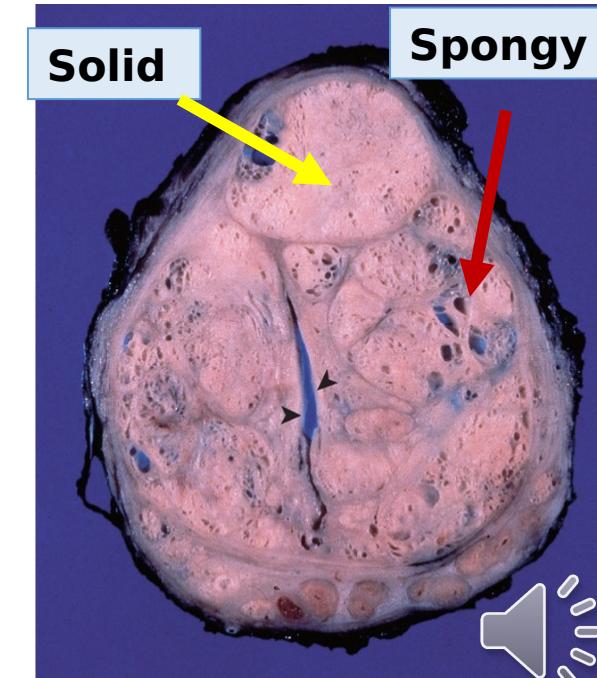
- Urethra is compressed

Friday, September 20, 2024

Endocrine a

<https://webpath.med.utah.edu/TUTORIAL/PROSTATE/PROST003.html>

Compressed
urethra



□ Hyperplastic nodules may have a

© Elsevier. Kumar et al: Robbins Basic Pathology 8e - www.studentconsult.com

Benign prostatic hyperplasia (BPH)



Mic

1-Glands (Acini)

- Hyperplastic
- Variable in size and shape with a double epithelial lining showing papillary infoldings
- The lumen contains glycoprotein material

(corpora amylacea)

Fibromuscular stroma

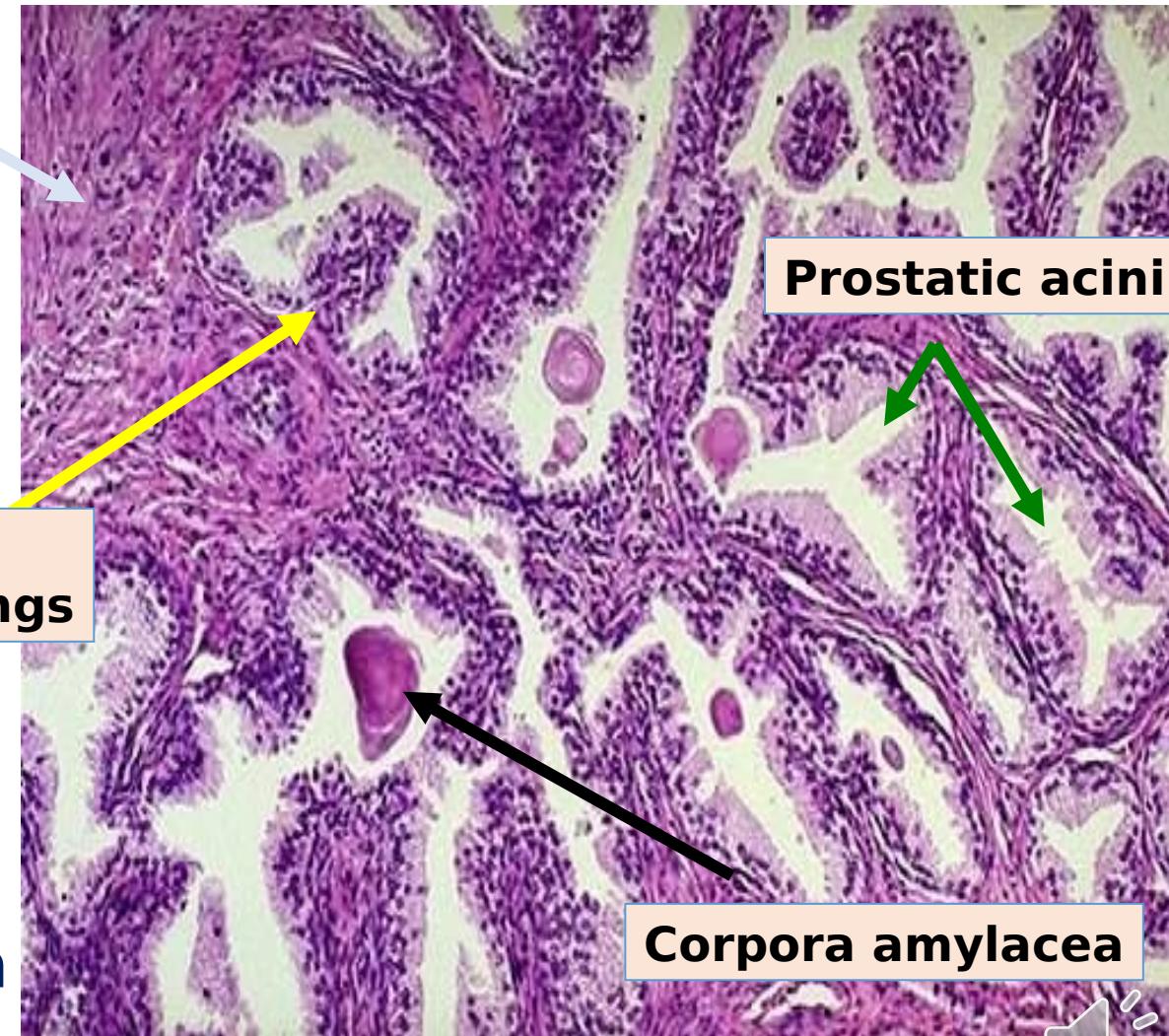
**Hyperplastic glands
with papillary infoldings**

2-Stroma

- Hyperplastic
- Fibromuscular
- With lymphocytic infiltrates

3-Prostatic infarcts are common in large prostate

Friday, September 20, 2024

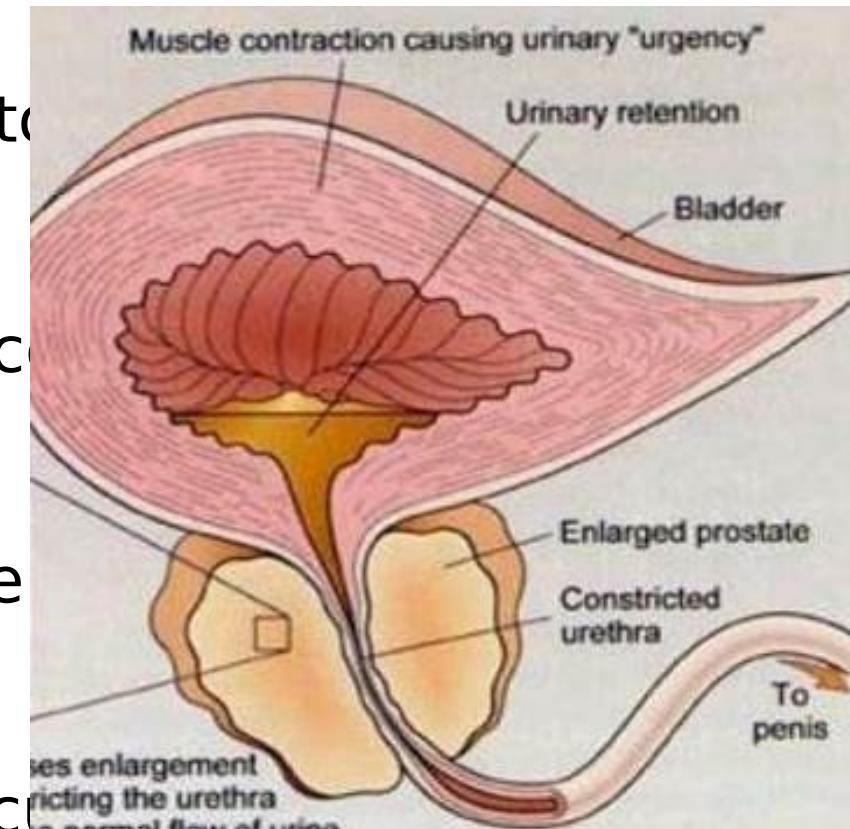




Effects and complications

1-Compression of prostatic urethra leads to:

- Difficult micturition
- Urine retention
- Hematuria due to congestion of urethral mucosa



2-Urinary incontinence

due to stretching of urethral sphincter by the enlarged prostate.

3-Urinary tract obstruction →

- Bladder hypertrophy, dilatation and diverticula
- Bilateral hydroureter and hydronephrosis → renal failure

4-Urinary stasis due to obstruction → Stone formation

→ Infection (cystitis,

<https://www.bahrainthisweek.com/benign-prostate-enlargement/>



Prostatic carcinoma

Prostatic carcinoma

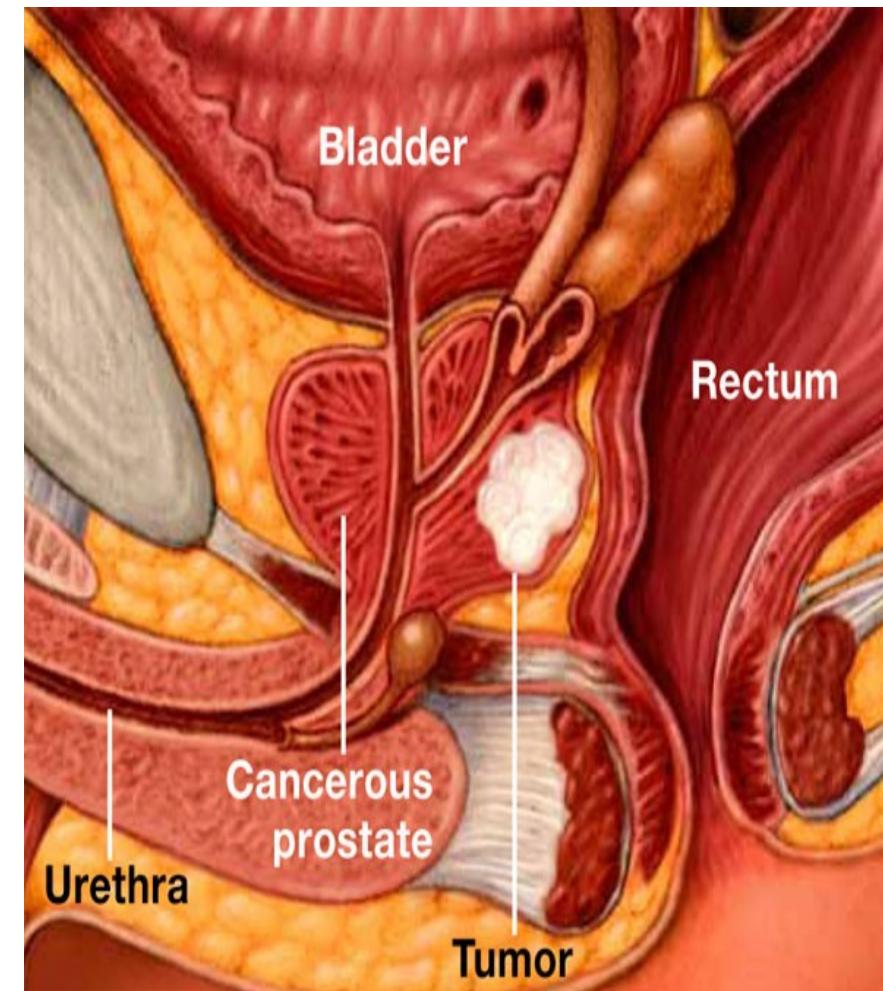
- Extremely common
- Most cases occur after the age of 50 years
- Most cases are hormone dependent (androgens)

Treatment: →

- Local disease prostatectomy (**removal of prostate**) and/or radiation.
- Metastatic disease orchiectomy (**source of androgen**) or anti-androgens.

Gross:

- Most cases arise from the peripheral zone
especially posteriorly.
- Rarely arises from the transitional periurethral zone



<https://www.arab-hams.com>



Prostatic carcinoma



Mic grading:

Prostatic

Adenocarcinoma

Gleason grade 1

- Uniform, closely packed acini lined by a single cell layer

Gleason grade 2

- Less uniform, less packed acini lined by a single cell layer

Gleason grade 3

- Cribriform patterns

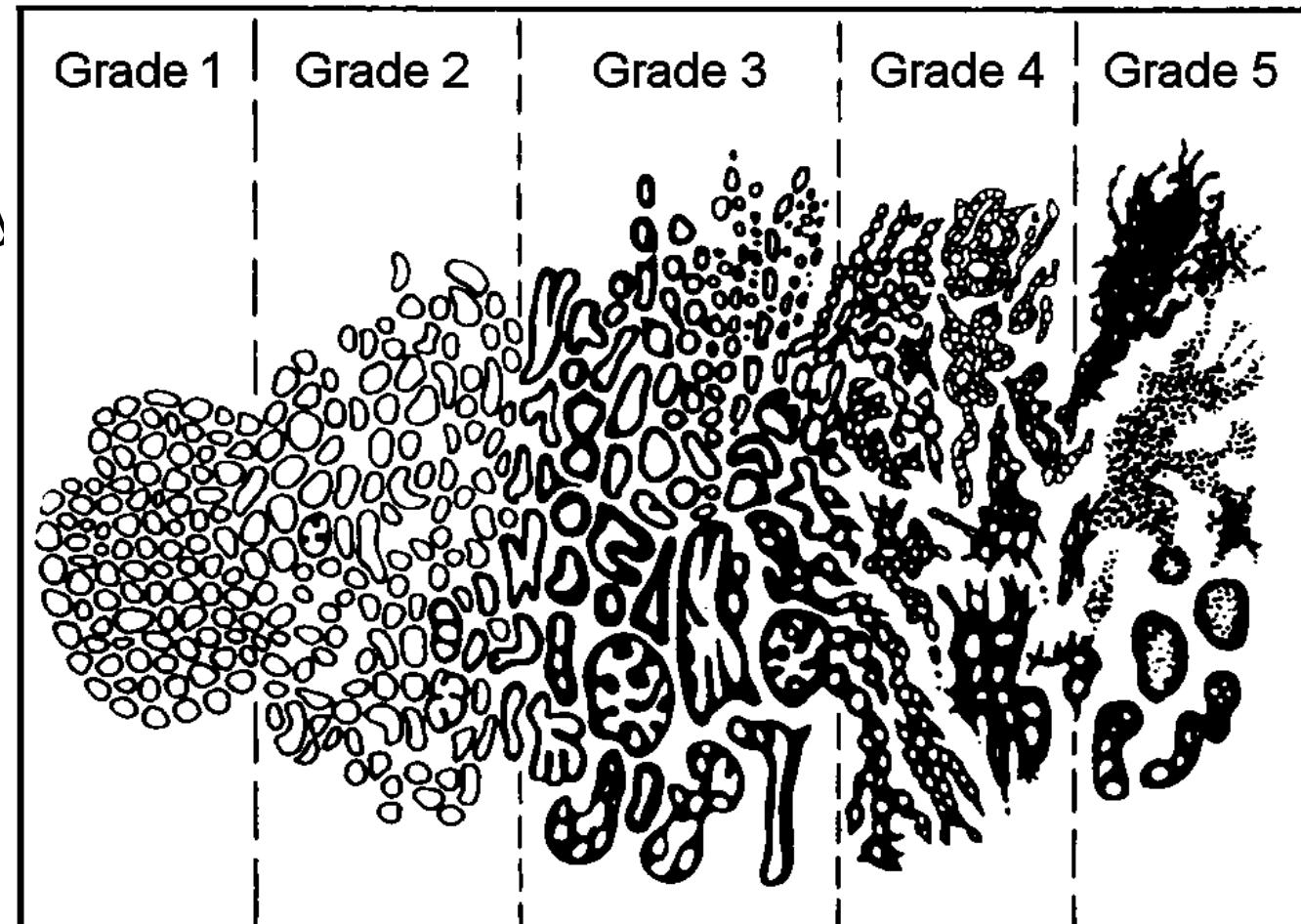
Gleason grade 4

- Fused glands

Gleason grade 5

- Solid sheets

Gleason grading

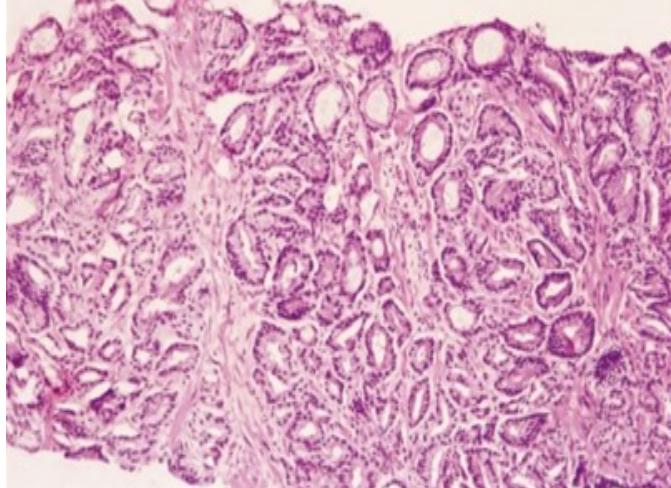


<https://www.prostate-cancer-radiotherapy.org.uk/glossary/Gleason%20Score.htm>

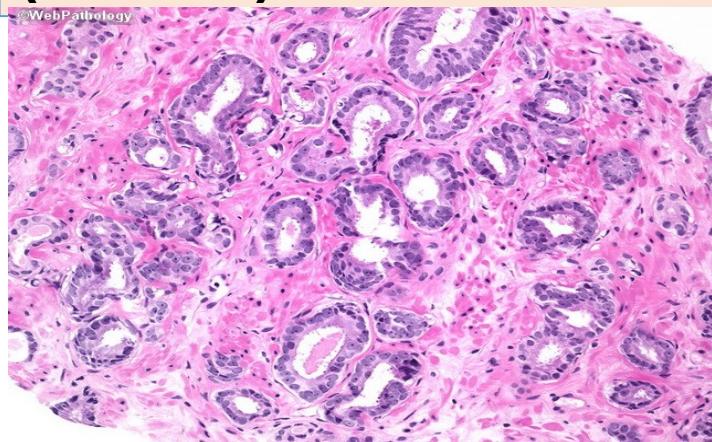


Prostatic carcinoma

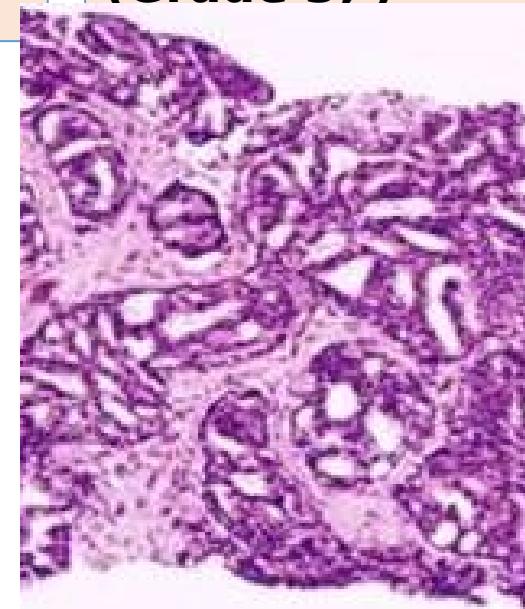
Uniform, Closely packed acini (Grade 1)



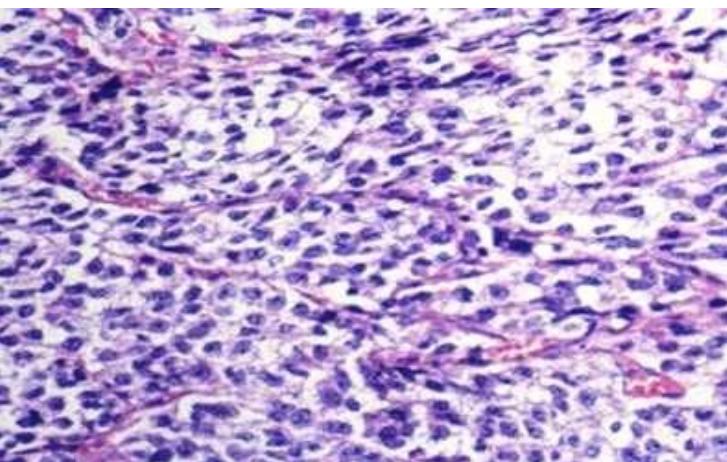
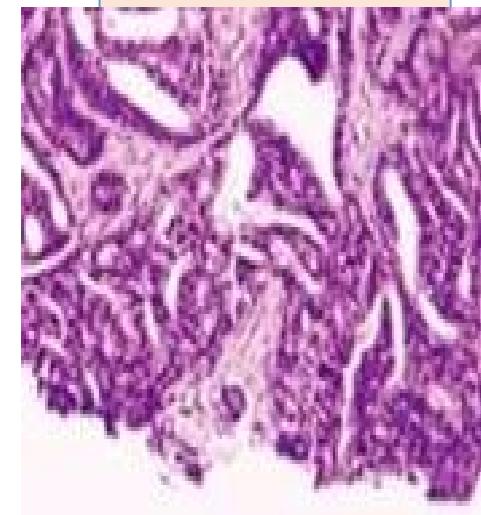
Less uniform, less packed acini (Grade 2)



Cribriform pattern (Grade 3.)



Fused glands (Grade 4)



Solid sheets of malignant cells (Grade 5)





Gleason score

Is made by adding the numerical values of **the two most predominant** grades

As Gleason grades 4+2 =score 6

Gleason scoring system is interpreted

1. Low grade (well differentiated) carcinoma = Gleason score 2-4
2. Medium grade (moderately differentiated) = Gleason grade 5-7
3. High grade (poorly differentiated) carcinoma = Gleason score 8-10



Prostatic carcinoma



Spread

Direct spread

- ❑ Invasion of prostatic capsule, prostatic urethra, urinary bladder & rectum.

- ❑ **Perineural invasion** is common

Lymphatic spread to

- ❑ Pelvic & retroperitoneal lymph nodes
- ❑ then to Supra-diaphragmatic nodes

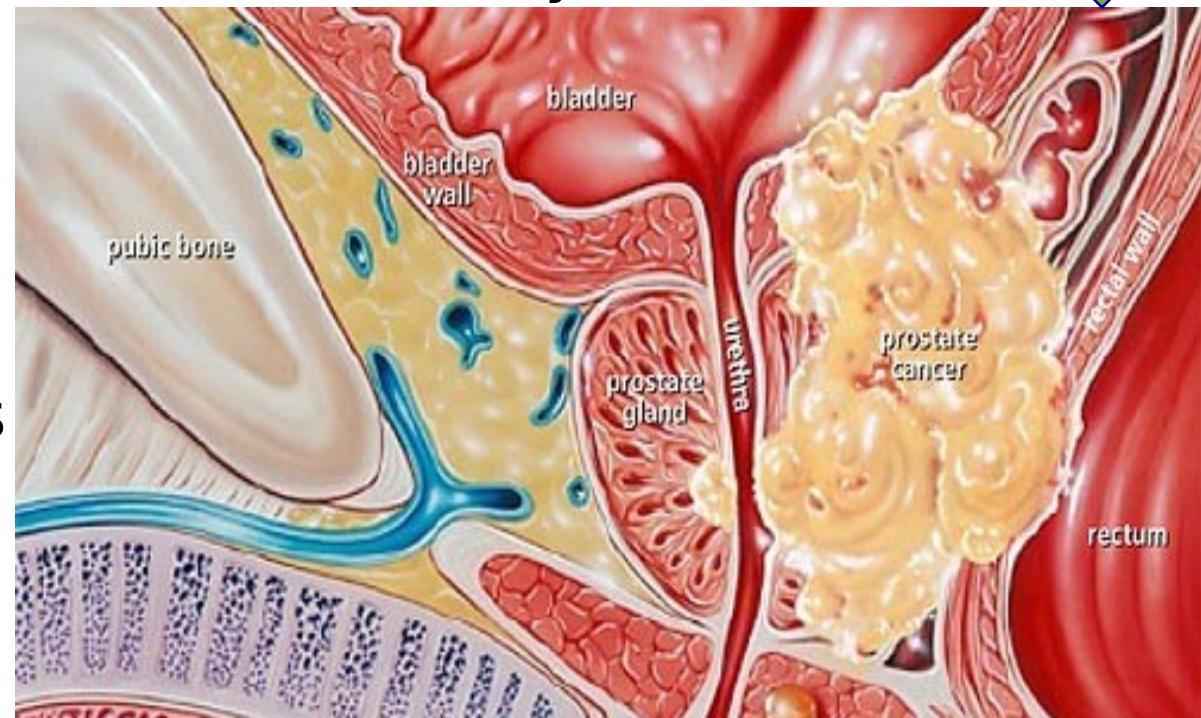
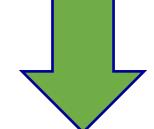
Blood spread to

- ❑ Bone (**osteoblastic metastases**)

Friday, September 20, 2024

Endocrine and genitourinary module

Direct spread



https://www.lifeextension.com/magazine/2008/12/destroying-the-myth-about-testosterone-replacement-prostate-cancer/page_02

- ❑ Lungs, skin, brain, penis, liver and adrenal glands



Prostatic carcinoma



Diagnosis

1-Rectal examination:

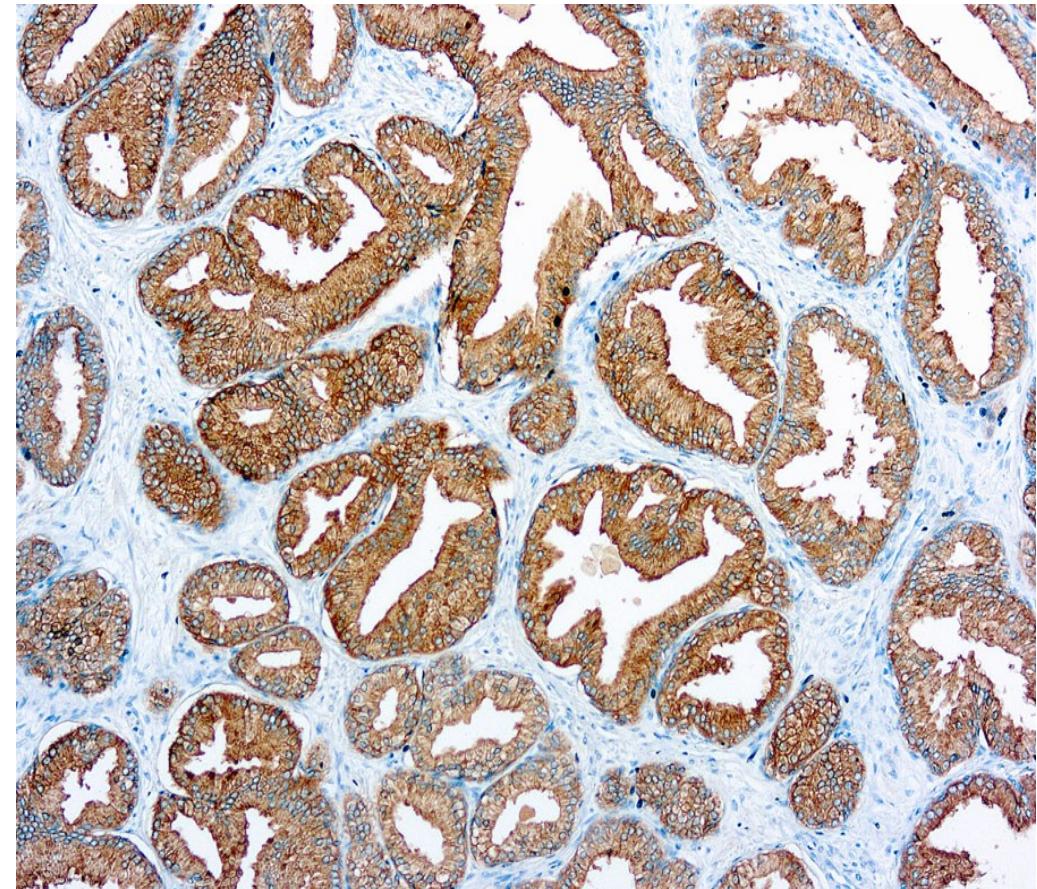
posterior location
→ easily palpable

2-Transrectal needle biopsy: of suspicious areas in the prostate.



3-Prostatic tissue specific antigen (PSA):

- Markedly elevation of serum **PSA**
- Positive (+ve) expression of PSA by immunohistochemistry



<https://enquirebio.com/antibody/anti-prostate-specific-antigen-cgmp-antibody>

PSA



Diseases of penis



Malformations of the penis

Epispadias: urethral opening on the dorsal surface of the penis,

Hypospadias: urethral opening on the ventral surface.

Balanitis (Inflammation of the glans penis) d.t poor hygiene & lack of circumcision.

Condyloma acuminatum (A warty, cauliflower-like growth) caused by HPV 6 ,11





Squamous cell carcinoma (SCC)

Due to infection with HPV 16 and 18.

Erectile dysfunction (ED).

Causes

1. Psychological factors
2. Decreased testosterone
3. Vascular insufficiency (most common cause age >50)
4. Neurologic disease (diabetic neuropathy)
5. Some medications



Hydrocele

Definition:

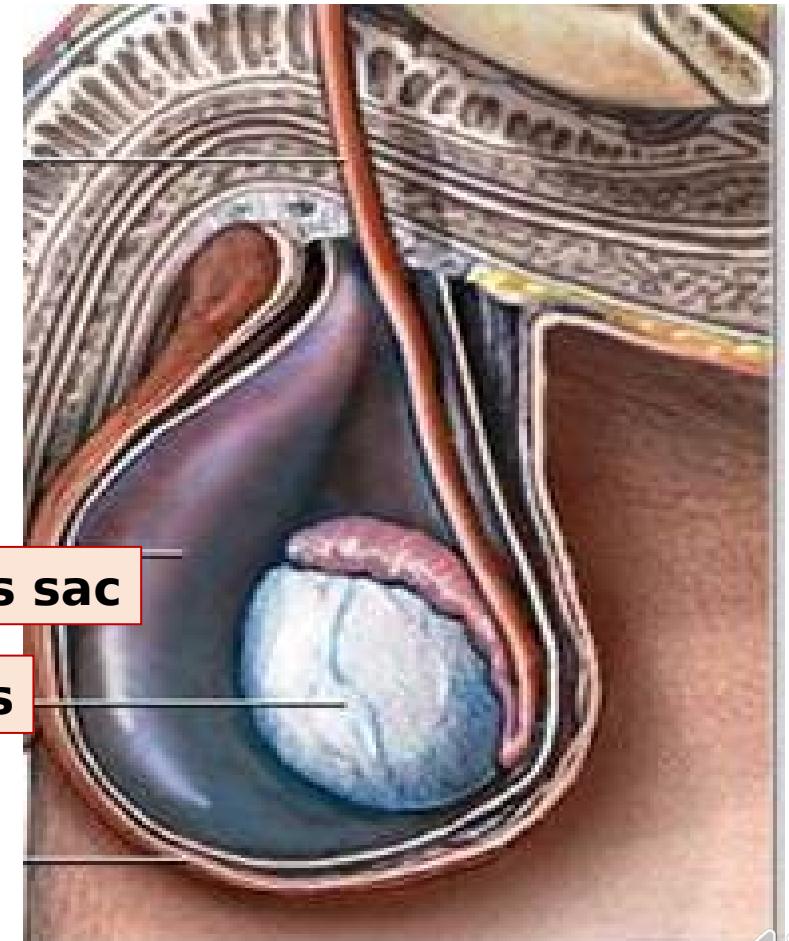
- Collection of **serous fluid** within the tunica vaginalis sac

Causes:

- Primary (Idiopathic) most common type
- Secondary to inflammation or tumor of **testis**
- Part of generalized oedema.

Effects:

- Testicular atrophy in prolonged cases
- Secondary infection



Haematocele

Definition

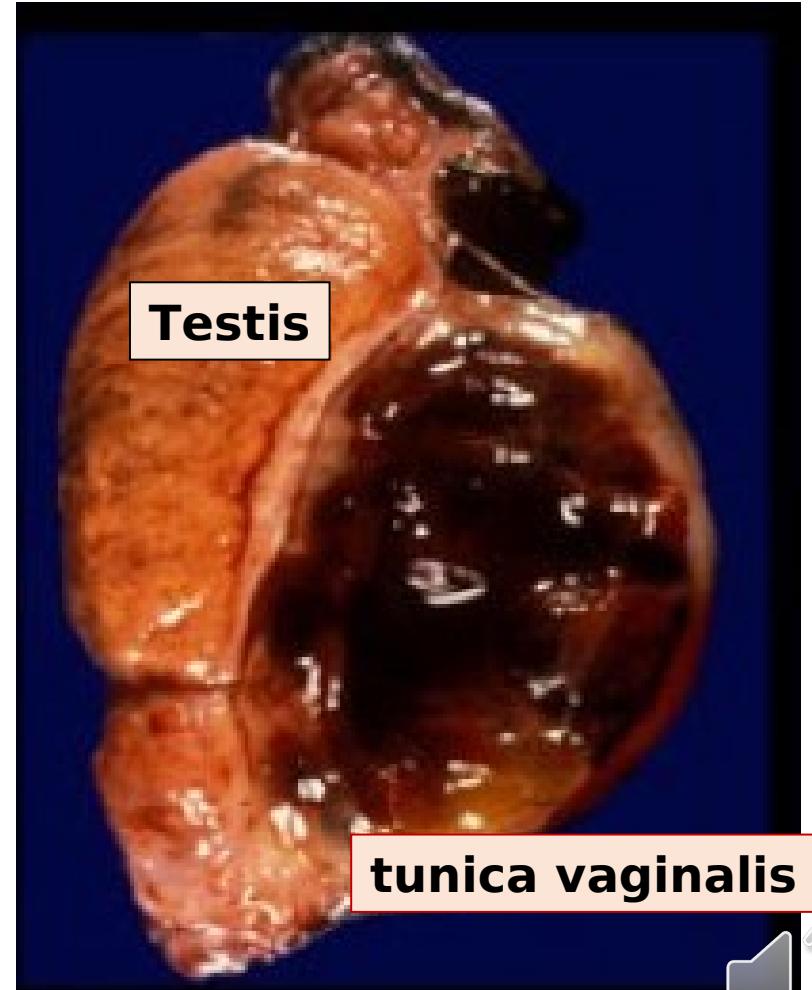
- Collection of **blood** within the tunica vaginalis sac .

Causes:

- **Local causes** as trauma and **testicular tumors**.
- **General causes** of bleeding as leukemia

Effects

- Fibrosis , calcification and pressure atrophy of testis
- Secondary infection (pyocele)

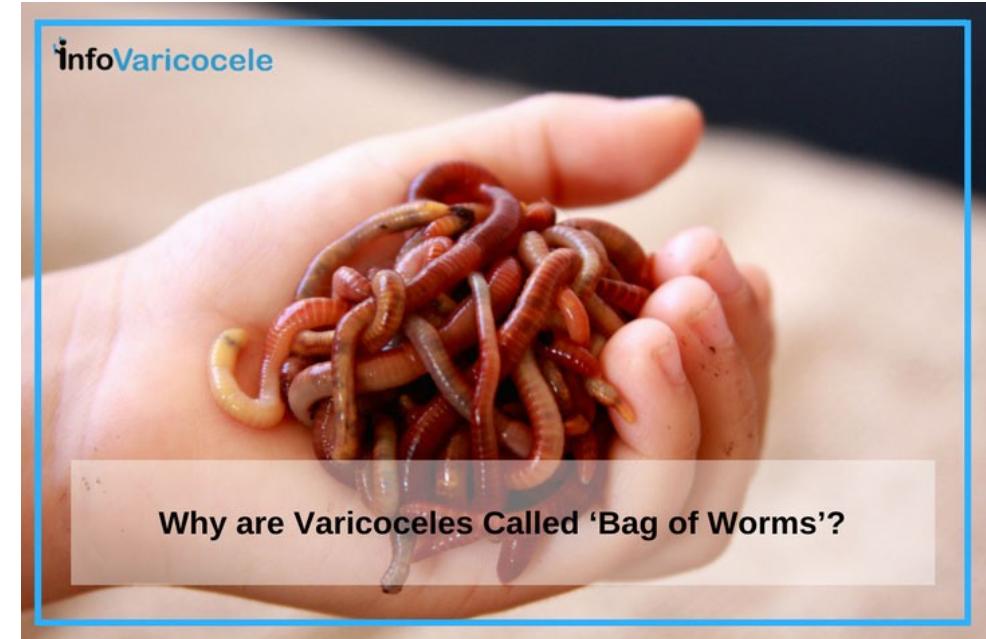
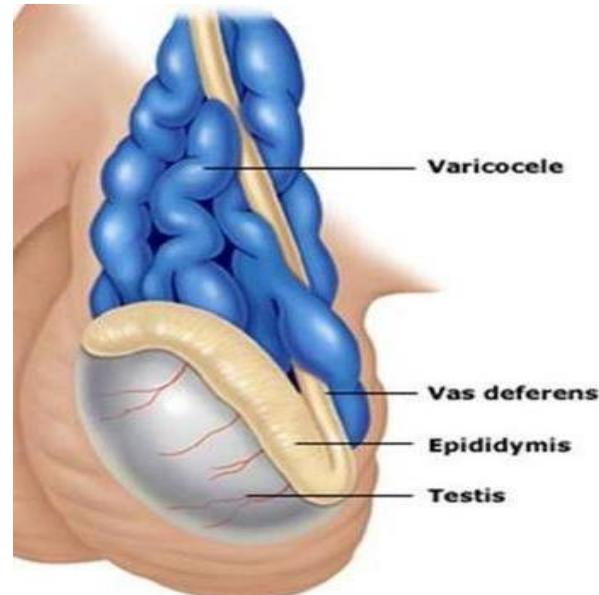
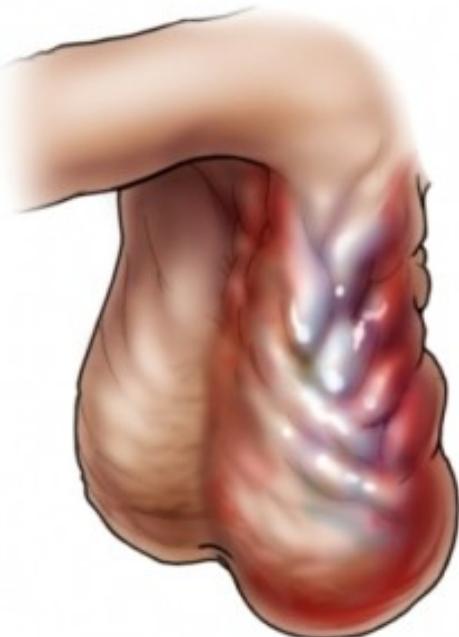




Varicocele

Definition

- Varicosity (elongation, dilatation & tortuosity) of the **pampiniform venous plexus**



<https://www.wnyurology.com/content.aspx?chunkid=96870>

Friday, September 20, 2024

Endocrine and genitourinary module

Bag of worms

<https://www.azuravascularcare.com/infovaricocele/varicoceles-bag-of-worms>



Causes

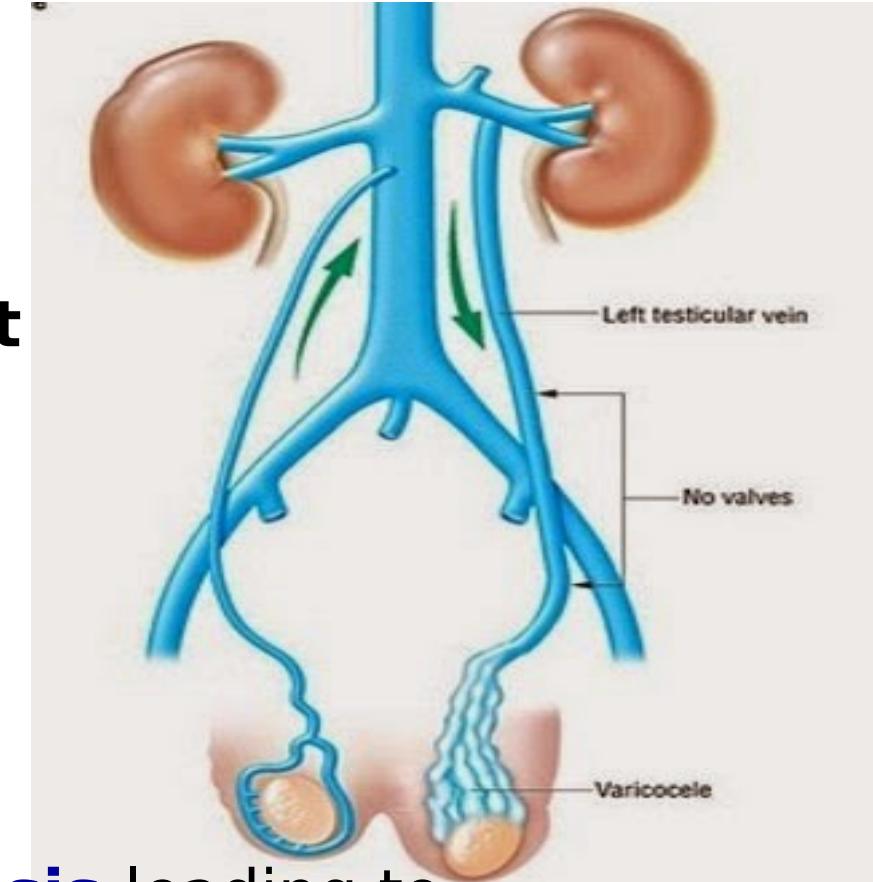
1-Primary idiopathic non obstructive type

- Common in young males particularly in the **left side**

2-Secondary type due to

- Chronic generalized venous congestion
- Obstruction of spermatic veins as **left varicocele** in case of left renal cell carcinoma

- It may lead to **depression of spermatogenesis** leading to infertility.



[https://sonographictendencies.wordpress.com/
2016/11/15/varicocele/](https://sonographictendencies.wordpress.com/2016/11/15/varicocele/)



Quiz



An old man complained of urine incontinence . Rectal examination showed enlargement of the prostate . Prostatectomy was done. Histologic examination gave the diagnosis of benign hyperplasia

- 1.Which zones are enlarged in this case?
- 2.Describe the histopathologic picture of the prostate in this condition?
- 3.What are the complications of such condition?



SUGGESTED TEXTBOOKS



1. Robbins basic pathology 10th edition, 2018. Chapter 18: Male genital system and lower urinary tract.

2. Kaplan step 1 pathology lecture notes. Chapter 24: Male pathology; 2017 (P.251-256)



Thank you



www.FunScrape.com

